

**To:** Dermer, Michele[Dermer.Michele@epa.gov]  
**From:** Harper, Jim  
**Sent:** Wed 3/9/2016 7:56:11 PM  
**Subject:** RE: Aquifer exemption for Arroyo Grande Oil Field - DENY

Pdf created and saved in G:\WTR-3-2\Former WTR-9 folder\DOGGR\Arroyo Grande  
AE\Comments

jim

**From:** Dermer, Michele  
**Sent:** Wednesday, March 09, 2016 11:22 AM  
**To:** Harper, Jim <Harper.Jim@epa.gov>  
**Subject:** FW: Aquifer exemption for Arroyo Grande Oil Field - DENY

**From:** Santa Lucia Chapter of the Sierra Club [<mailto:sierraclub8@gmail.com>]  
**Sent:** Tuesday, March 08, 2016 7:13 PM  
**To:** Albright, David <[Albright.David@epa.gov](mailto:Albright.David@epa.gov)>  
**Cc:** Dermer, Michele <[Dermer.Michele@epa.gov](mailto:Dermer.Michele@epa.gov)>; Robin, George <[Robin.George@epa.gov](mailto:Robin.George@epa.gov)>;  
Kobelski, Bruce <[Kobelski.Bruce@epa.gov](mailto:Kobelski.Bruce@epa.gov)>  
**Subject:** Aquifer exemption for Arroyo Grande Oil Field - DENY



Santa Lucia Chapter

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March 8, 2016

David Albright

U.S. EPA, Region 9

Manager, Drinking Water Protection Section (WTR-9)

75 Hawthorne Street

San Francisco, CA 94105

RE: Denial of aquifer exemption for Arroyo Grande Oil Field

Dear Mr. Albright,

On Feb. 8, 2016 California's Division of Oil, Gas and Geothermal Resources (DOGGR) recommended an aquifer exemption for Class II injection wells in the Arroyo Grande oilfield operated by Freeport McMoRan.

We urge you not to approve this exemption. In making the determination that the proposed expansion of the exemption area of the aquifer used for disposal of wastewater from the Arroyo Grande Oil Field meets the requirement that the injected fluid will remain in the aquifer or portion of the aquifer that would be exempted, DOGGR ignored the need for groundwater

models under current and future conditions and failed to require Freeport McMoRan to address concerns about the effects of seismic activity on this aquifer.

We draw your attention to recent statements by the US Geological Survey Earthquake Hazards Program to the effect that wastewater disposal is the primary cause of the recent increase in earthquakes in the central United States. USGS has found that oil wastewater injection can raise pressure levels more than enhanced oil recovery, and thus increases the likelihood of induced earthquakes.

DOGGR's reliance on the determination that the Arroyo Grande Fault is likely to continue to restrict groundwater/fluid flow across the northern boundary of the proposed expanded exemption area merits reconsideration in view of these findings. The Arroyo Grande application should be analyzed in light of the documented rise in injection-induced seismicity in the central and eastern U.S. between 2008-2014 and the confirmation of the link between increased seismicity and the practice of pumping produced wastewater from oil and gas production into the ground.

It is a matter of special concern that Freeport McMoRan's application omits the company's plans to expand operations in this oilfield by drilling up to 350 new wells (including injection wells) to achieve a 10-fold increase in daily oil production. The analysis of the aquifer exemption is based on current water extraction and injection. Nowhere does the application mention that the company is pursuing this expansion project. There is no analysis of what will happen to the aquifer if that expansion proceeds -- including possible changes in pressure and the potential for inducing fractures.

We urge the state to require such an analysis before affirming that the requirement of PRC 3131(a)(3) has been met. The analysis should determine the proposed injection rate and total volume injected; the presence of faults that are large enough to produce felt earthquakes; stresses large enough to produce earthquakes; and the presence of pathways for the fluid pressure to travel from the injection point to faults.

Thank you for your attention to this issue,

Andrew Christie, Director

Santa Lucia Chapter of the Sierra Club

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cc:

Michele Dermer

George Robin

Bruce Kobelski